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A notable host index.

WHAT DeCandolle's *Prodromus* did for the systematic study of spermatophytes, Saccardo's *Sylloge* has done for the study of fungi. In the eleven heavy volumes of this work all species of fungi described before 1895, over forty-two thousand, have been displayed, with synonyms and geographical distribution. In 1897 an index to genera and species, prepared by Dr. Sydow, was issued, forming volume twelve of the work. And now we have the first part of volume thirteen,⁵ compiled by the same bibliographer, indexing the work by hosts. The typographical features of the volume are of the best. The name of the host is printed in bold-faced type, and the names of the attendant fungi are given beneath in a single column. The clearness and the simplicity of the arrangement leave nothing to be desired. With the issuing of this volume the mycologists of the world are placed under a further debt of gratitude to the promoter of the work.—J. C. A.

Fundamental problems of science.⁶

THIS BOOK is an attack upon the theory of so-called scientific materialism, written by a disciple of Schopenhauer. The indictment contains two counts: first, that the theory in question attempts to explain all the phenomena in the world, open to scientific investigation, by means of motion; secondly, that it assumes the reality of matter as an extended impenetrable substance existing independently of our perceptions, and conceives of it as the main, if not the sole, constituent of the universe. In his criticism of the second of these two propositions Dr. Wagner is at one, not merely with practically all students of philosophy, but also with many, perhaps the majority of the scientists of today. Even the drudge, whose ideas never rise above mere label-pasting, has had the problem of the real nature of matter forced upon his attention by the writings of Huxley in England, and Helmholtz in Germany—to mention only two of the most eminent. Indeed, it requires but a moderate amount of meditation to discover that one's own consciousness is the sole source of knowledge, and that therefore the only direct information as to the nature of the constituents of the external world is given by sensation. The coming and going of these sensations reveal the existence of certain forces, or perhaps a single force, to whose activity they are due, but until we can jump out of our own skins we can have no idea of the nature of these forces as they are in themselves. Annihilate the conscious subject, and

⁵ SACCARDO, P. A.—*Sylloge fungorum omnium hucusque cognitorum*. Vol. XIII; *Index universalis et locupletissimus hospitum fungorum*. Auctore P. Sydow. Roy. 8vo. [part I, pp. 1-624.] Berolini: Fratres Borntraeger. 1898.

⁶ WAGNER, ADOLF.—*Grundprobleme der Naturwissenschaft*. Briefe eines unmodernen Naturforschers. 8vo. pp. viii + 255. [No index.] Berlin: Gebrüder Bornträger, 1897. *M* 5.

extension and impenetrability—the qualities of touch—disappear along with color and odor, gone perhaps to look for the hole in the cookie after the cookie has been eaten.

From these premises Dr. Wagner considers himself entitled to conclude that the atom and the ether are pure mythological entities. But here he certainly moves too fast. That the atom does not exist in the sense in which materialism supposes it does may well be conceded, but, though essentially intangible and invisible, the question whether it may not exist in the same sense in which the flower that is “born to blush unseen” may be said to be a reality, is another problem—one to be decided by a study of evidence which lies entirely outside of the province of the metaphysician as such to discuss. As well might he have dogmatized about the formation of crystals from solutions before Leuwenhoek turned his microscope upon them, or about the cause of tuberculosis while Koch was still experimenting with staining fluids.

In our use of the word “cause” we have laid ourselves open to another criticism which our author directs against the atomic theory. The only efficient causes, he tells us, are the forces that lie behind phenomena; and, therefore, to talk of the atom or the ether as active agents in the production of change is an absurdity. In one sense this is true enough, but as a criticism upon the use of these terms by a scientist who knows his business, it is irrelevant. The invisible water in the form of steam, in the cylinder of the engine, is just as truly an agent capable of doing work as is the visible water that turns a mill wheel. Perhaps in all strictness we ought to speak rather of the unknown forces that lie behind the steam, as the true agent; if so we must revise in a corresponding manner our everyday language about the mill stream.

It will be seen that Dr. Wagner's book, clearly and convincingly as it has stated some fundamental truths, is a horrible example of the confusion of the scientific and the metaphysical problems raised by the world of nature. But he is not the first. His immediate predecessor in this line is the illustrious Professor Ostwald, who seems to think he has found in idealism a weapon with which to destroy a theory which he himself has probably rejected on other grounds. And then there are the “scientific materialists.” Mistaking the atom for a metaphysical entity they suppose themselves in possession of the clue to the nature of ultimate reality. Reviling all metaphysics, they themselves have swallowed whole one of the shallowest and most dogmatic of metaphysical systems—a spectacle which would certainly be one of the most amusing in the history of thought, if it were not at the same time one of the most mournful.—FRANK CHAPMAN SHARP.

Lessons with plants.

ANOTHER BOOK comes to us from the pen of Professor L. H. Bailey, which is likely to be highly acceptable to the constituency to which it is